



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,787	12/19/2001	Hideaki Shoji	216458US2PCT	1669

22850 7590 03/11/2005

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

GENACK, MATTHEW W

ART UNIT PAPER NUMBER

2645

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/926,787

Applicant(s)

SHOJI ET AL.

Examiner

Matthew W. Genack

Art Unit

2645

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 19 December 2001.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: Supplemental IDS.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. The term "short" in claim 7 is a relative term which renders the claim indefinite. The term "short" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Examiner interprets Claim 7 as if "short" is not present.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by European Patent Application EP 0 843 376 A2.

Regarding Claim 1, Masahiro *et. al.* discloses a portable radio device with two antennas (Column 1 Lines 1-10), said portable radio device having a casing (Column 1 Lines 49-52). Furthermore, Masahiro *et. al.* discloses that one of the two antennas is a linear antenna which may be in either an extended position or contained within the device casing (Column 1 Lines 31-41, Column 4 Lines 36-40, Figs. 2a, 2b). The other antenna is an internal antenna and comprises a

Art Unit: 2645

ground, an antenna element, a feed section, and a short-circuit plate by which said ground is connected with said antenna element (Column 4 Lines 46-50, Figs. 2a, 2b). As a portable electronic device, it is inherent that there exists a power supply means within said portable electronic device for exciting the antennas.

Regarding Claim 2, Masahiro *et. al.* discloses the use of a switch circuit and radio circuit (said radio circuit being connected to a power supply by inherency) connected together inside of the portable radio device (Column 5 Lines 8-12, Fig. 3).

Regarding Claim 3, Masahiro *et. al.* discloses that the switch circuit connects the internal antenna with the radio section circuit (and thus to a power supply, by inherency) when the linear antenna is contained in the portable radio device (Column 5 Lines 25-47), and also that said switch circuit connects the linear antenna with the radio section circuit (and thus to a power supply, by inherency) when the linear antenna is extended (Column 5 Line 48 to Column 6 Line 9).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2645

6. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masahiro *et. al.* in view of Koyanagi *et. al.*, U.S. Patent No. 5,940,040.

Masahiro *et. al.* discloses all of the limitations of Claims 1-2, upon which Claims 4-6 depend.

Masahiro *et. al.* does not expressly disclose switching means for simultaneously connecting both antennas to the radio circuit (and thus the power supply) based on the position of the extendable linear antenna.

Koyanagi *et. al.* discloses a portable wireless device with a whip antenna and a built-in antenna and an antenna select switch (Column 2 Line 65 to Column 3 Line 6, Figs. 1-2). The antenna select switch in Fig. 1 has multiple switching elements and is capable of connection both the transmitting circuit and the receiving circuit (both in the larger radio circuit) to both the whip antenna and the built-in antenna simultaneously.

At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to modify the invention of Masahiro *et. al.* by including an antenna select switch that connects both antennas to the power supply when the linear antenna is extended and only the internal antenna to the power supply when the linear antenna is not extended, that also connects both antennas to the power supply regardless of the position of the linear antenna, and that connects only the linear antenna to the power supply means when the linear antenna is extended and both antennas to the power supply when the linear antenna is not extended.

One of ordinary skill in the art would have been motivated to make these modifications because a mobile radio device encounters a variety of circumstances due to the variety of locations that it can be at and modes of operation that it must perform, and so the ability to transmit and receive different wave polarizations and the ability to control antenna array directivity is advantageous.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masahiro *et. al.* in view of Rawle, U.S. Patent No. 6,078,295, further in view of Vannatta *et. al.*, U.S. Patent No. 5,649,306.

Masahiro *et. al.* discloses all of the limitations of Claim 1, upon which Claim 7 depends.

Masahiro *et. al.* does not expressly disclose the use of a monopole antenna with a length equal to an integer multiplied by a half wavelength as the extendable linear antenna, nor the use of a patch antenna as the built-in antenna.

Rawle discloses the use of an antenna for operating in three separate bands: low, mid, and high (Abstract). Such an antenna has application in portable radio terminals (Column 1 Lines 24-28 and 43-44). The antenna that is used is a half wavelength monopole antenna (Column 3 Lines 37-44).

At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to modify the invention of Masahiro *et. al.* by making the linear extendable antenna a monopole antenna with length equal to half of a wavelength.

Art Unit: 2645

One of ordinary skill in the art would have been motivated to make this modification because a length of one half wavelength (and multiples thereof) yields a resonant structure, meaning that the antenna input impedance is pure real, which makes impedance matching easier, and the use of a monopole with a ground plane yields a radiation pattern similar to a dipole *sans* a ground plane, but with less conductor.

Neither Masahiro *et. al.* nor Rawle discloses the use of a patch antenna for use inside of a portable radio device.

Vannatta *et. al.* discloses a radio telephone device with two distinct housing elements (Column 4 Lines 34-40). One of the housing elements contains a patch antenna (Column 4 Lines 50-62).

At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to modify the invention of Masahiro *et. al.* as modified by Rawle by using a patch antenna for the built-in antenna.

One of ordinary skill in the art would have been motivated to make this modification because patch antennas are compact and well-suited for use on a printed circuit board, and thus for use inside of an electronic device.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masahiro *et. al.* in view of Rawle further in view of Vannatta *et. al.* further in view of Balzano *et. al.*, U.S. Patent No. 4,800,395.

Masahiro *et. al.*, Rawle, and of Vannatta *et. al.* disclose all of the limitations of Claim 7, upon which Claim 8 depends.

Neither Masahiro *et. al.*, nor Rawle, nor Vannatta *et. al.* expressly discloses the use of a helical antenna arranged in series with the monopole antenna.

Balzano *et. al.* discloses the use of a fed monopole antenna connected in series with a helical antenna (Column 2 Lines 34-37 and 46-49, Fig. 3).

At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to modify the invention of Masahiro *et. al.* as modified by Rawle as further modified by Vannatta *et. al.* by placing a helical antenna in series with the monopole antenna.

One of ordinary skill in the art would have been motivated to make this modification because the addition of a series helical antenna allows the matching of the input impedance of the combined antenna with a standard system impedance (50 Ohms, for example), thus simplifying the circuitry inside of the portable radio device (Balzano *et. al.* Column 1 Lines 25-29).

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masahiro *et. al.* in view of Mendolia, U.S. Patent No. 5,838,789.

Masahiro *et. al.* discloses all of the limitations of Claim 1, upon which Claim 9 depends.

Masahiro *et. al.* does not expressly disclose the use of a linear antenna arranged obliquely away from the user's head.

Mendolia discloses a specially shaped cellular telephone (Abstract). In one embodiment of the invention, the linear antenna is oriented obliquely away from the user's head (Column 5 Lines 26-35, Fig. 6).

Art Unit: 2645

At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to modify the invention of Masahiro *et. al.* by orienting the linear antenna obliquely away from the user's head.

One of ordinary skill in the art would have been motivated to make this modification because such an orientation would result in less distortion of the radiation pattern of the antenna due to the presence of the user's head.

10. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Phillips, U.S. Patent No. 5,561,436, in view of Masahiro *et. al.*.

Regarding Claim 10, Phillips discloses a portable radio device that has a casing with a flip (Column 2 Lines 25-29, 45-48 and 55-64 , Figs. 1-2). This device has two antennas, one of them being located in the flip (Column 3 Lines 10-11), and the other one being located in the main housing (Column 3 Lines 21-24) and is plate-like (Column 4 Lines 25-27). As a portable electronic device, it is inherent that there exists a power supply means within said portable electronic device for exciting the antennas.

Phillips does not expressly disclose the use of a ground substrate.

Masahiro *et. al.* disclose the use of a ground substrate which is connected to the internal antenna (Column 4 Lines 46-50, Figs. 2a, 2b).

At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to modify the invention of Phillips by including a ground substrate for connection with the internal antenna.

One of ordinary skill in the art would have been motivated to make this modification because the inclusion of a ground substrate allows for the use of

Art Unit: 2645

compact antenna designs because of the image property of radiation in the presence of a ground plane.

Regarding Claim 11, Phillips discloses limitations of Claim 10, upon which Claim 11 depends, as outlined above.

Phillips does not expressly disclose switching means between the two antennas.

Masahiro *et. al.* discloses the use of a switch circuit and radio circuit (said radio circuit being connected to a power supply by inherency) connected together inside of the portable radio device (Column 5 Lines 8-12, Fig. 3).

At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to modify the invention of Phillips by including a switch circuit for switching between the two antennas.

One of ordinary skill in the art would have been motivated to make these modifications because a mobile radio device encounters a variety of circumstances due to the variety of locations that it can be at and modes of operation that it must perform, and so the ability to transmit and receive different wave polarizations and the ability to control antenna array directivity is advantageous.

Regarding Claim 12, Phillips discloses limitations of Claim 10, upon which Claim 12 ultimately depends, as outlined above.

Phillips does not expressly disclose switching means between the two antennas.

Masahiro *et. al.* discloses that the switch circuit connects the internal antenna with the radio section circuit (and thus to a power supply, by inherency) when the linear antenna is contained in the portable radio device (Column 5 Lines 25-47), and also that said switch circuit connects the linear antenna with the radio section circuit (and thus to a power supply, by inherency) when the linear antenna is extended (Column 5 Line 48 to Column 6 Line 9).

At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to modify the invention of Phillips by including a switch circuit for switching between the two antennas such that the flip antenna is connected to the power supply when the flip is opened and plate-like antenna is connected to the power supply when the flip is closed.

One of ordinary skill in the art would have been motivated to make these modifications because a mobile radio device encounters a variety of circumstances due to the variety of locations that it can be at and modes of operation that it must perform, and so the ability to transmit and receive different wave polarizations and the ability to control antenna array directivity is advantageous.

11. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Phillips in view of Masahiro *et. al.* further in view of Koyanagi *et. al.*

Phillips and Masahiro *et. al.* disclose all of the limitations of Claims 10-11, upon which Claims 13-15 depend.

Neither Phillips nor Masahiro *et. al.* discloses the use of disclose switching means for simultaneously connecting both antennas to the radio circuit (and thus the power supply) based on the position of the flip.

Koyanagi *et. al.* discloses a portable wireless device with a whip antenna and a built-in antenna and an antenna select switch (Column 2 Line 65 to Column 3 Line 6, Figs. 1-2). The antenna select switch in Fig. 1 has multiple switching elements and is capable of connection both the transmitting circuit and the receiving circuit (both in the larger radio circuit) to both the whip antenna and the built-in antenna simultaneously.

At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to modify the invention of Masahiro *et. al.* by including an antenna select switch that connects both antennas to the power supply when the flip is opened and only the plate-like antenna to the power supply when the flip is closed, that also connects both antennas to the power supply regardless of the position of the flip, and that connects only the flip antenna to the power supply means when the flip is opened and both antennas to the power supply when the flip is closed.

One of ordinary skill in the art would have been motivated to make these modifications because a mobile radio device encounters a variety of circumstances due to the variety of locations that it can be at and modes of operation that it must perform, and so the ability to transmit and receive different wave polarizations and the ability to control antenna array directivity is advantageous.

Art Unit: 2645

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew W. Genack whose telephone number is 703-605-4305. The examiner can normally be reached on FLEX.

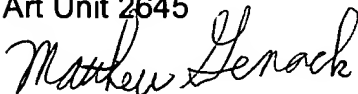
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on 703-305-4895. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Matthew Genack

Examiner

Art Unit 2645



16 February 2005



FAN TSANG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

